PROJECT NUMBER: 6912
PROJECT TITLE: Tobacco/Smoke Relationships
PROJECT LEADER: R. R. Izac
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PERIOD COVERED: May 1990

I. CROSS SOLUBLES/BASE WEB (CHEMISTRY)

A. Objective: Modify tobacco solubles and evaluate the smoke chemistry of fillers from various treated solubles and the appropriate base web.

B. Results: The impaction trapped cigarette smoke condensate (IT CSC) from the silver nitrate model cigarettes has been prepared, stored and submitted for S/M assay testing. A hollow fiber membrane experiment designed to remove material on the basis of molecular weight was completed. Molecular weight cut-offs were 10kD, 50kD, and 500kD. An experiment using ultrafiltration in combination with ion exchange to modify tobacco solubles is being repeated. The effects of irradiation using a quartz mercury-vapor lamp on BuS1 are also being evaluated. An experiment using 30% hydrogen peroxide to modify amino acids in BuS1 was initiated. Different amounts of hydrogen peroxide were added to a standard volume of BuS1 stock solution samples. The treated samples were heated or stored at room temperature. No precipitates were formed in any of the treated samples with or without heat. Eight model fillers and a control have been generated.

Partially reconstituted burley S1 was applied to bright base web without spraying. The solubles and base web were mixed. Preliminary analytical hot water solubles (HWS) data show the percent solids in treated filler from this method of application is lower than HWS from sprayed filler samples. A direct comparison of methods was initiated.

Burley CEL was centrifuged to produce burley solubles (S1) and insolubles.

C. Plans: Submit IT CSC samples from the silver nitrate, hollow fiber membrane, and hydrogen peroxide experiments for S/M assay testing. Freeze dry burley S1 and insolubles and prepare for spraying onto bright base web.

D. References:

1. Izac, R. PM Notebook 8874, pp. 48-55.

2. Drew, S. PM Notebook 8950, pp. 13-23.
3. Hellams, R. PM Notebook 8959, p. 62.

II. SUPPORT FUNCTION: SAMPLE PREPARATION

A. **Objective:** To prepare chemical fractions and/or condensates as needed for biological and chemical analysis.

B. **Results:** Eleven requests for handmade cigarettes (a total of 647 cigarettes) were completed. Cigarette smoke condensate was prepared for Projects 6912, 6906, 1620, and 2501. A total of 30 samples was smoked. Impaction trap cigarette smoke condensate from two types of cigarettes were collected in quadruplicate.

C. **References:**

1. McGee, N. Personal communication.
2. Hellams, R. PM Notebook, 8959, p 62.